

SMALLPOX FACT SHEET (11/27/02)

About Smallpox

Smallpox is an acute, contagious, and sometimes fatal disease marked by fever and a distinctive progressive skin rash. Smallpox is caused by the variola virus that emerged in human populations thousands of years ago.

Historically, naturally occurring smallpox has been one of the most feared diseases because of its 30 percent fatality rate and ability to spread in any climate and season. In 1980, the disease was declared eradicated following worldwide vaccination programs and the World Health Organization recommended that all countries stop vaccination. However, in the aftermath of the events of September and October, 2001, the U.S. government is taking precautions to be ready to deal with a bioterrorist attack using smallpox as a weapon. As a result of these efforts: 1) There is a detailed nationwide smallpox response plan designed to quickly vaccinate people and contain a smallpox outbreak and 2) There is enough smallpox vaccine to vaccinate everyone who would need it in the event of an emergency.

The likelihood of a deliberate release of smallpox as an epidemic disease is unknown, but precautions are being taken at the federal, state and local level to deal with this possibility.

Signs and Symptoms

After a person is exposed, it takes between seven and 17 days for symptoms of smallpox to appear (average incubation time is 12 to 14 days). During this time, the infected person feels fine and is not contagious.

The symptoms of smallpox begin with high fever, head and body aches, and sometimes vomiting. After four to seven days of a high fever, a rash develops that progresses over the next week from raised bumps to firm, pus-filled blisters to ones that form a crust. The crusty lesions become scabs that fall off about three weeks after the start of the rash, leaving a pitted scar.

Transmission

Generally, direct and fairly prolonged face-to-face contact is required to spread smallpox from one person to another. Smallpox also can be spread through direct or indirect contact with the skin lesions or rarely by contaminated objects such as bedding or clothing. Rarely, smallpox has been spread by virus carried in the air in enclosed settings such as buildings, buses, and trains. Humans are the only natural hosts of variola. Smallpox is not known to be transmitted by insects or animals.

A person with smallpox is contagious with the onset of rash, which normally appears after four to seven days of high fever. At this stage the infected person is usually very sick and not able to move around in the community. The infected person is contagious until the last smallpox scab falls off.

The smallpox virus is fragile. In laboratory experiments, 90 percent of aerosolized smallpox virus dies within 24 hours; in the presence of ultraviolet (UV) light, such as sunlight, this percentage would be even greater. If an aerosol release of smallpox was to occur, 90 percent of virus matter would be dead in about 24 hours.

Lab Testing

The disease is commonly identified by a doctor based on the distinctive rash it causes on the face, hands, arms and legs.

The Centers for Disease Control and Prevention can perform laboratory confirmation by testing samples from patients suspected of having the disease. Most large laboratories can test for Chickenpox, the rash illness that most resembles smallpox.

Prevention and Treatment

Smallpox can be prevented through use of the smallpox vaccine.

The vaccine is made from a virus called vaccinia, which is another “pox”-type virus related to smallpox. The vaccine helps the body develop immunity to smallpox. Vaccination within three to four days of exposure will completely prevent or significantly lessen the effect of smallpox in the vast majority of people. Vaccination five to seven days after exposure likely offers some protection from disease or may modify the severity of disease.

Routine vaccination of the American public against smallpox stopped in 1972 after the disease was eradicated in the United States through use of the vaccine. Until recently, the U.S. government provided the smallpox vaccine only to a few hundred scientists and medical professionals who work with vaccinia and similar viruses in a research setting. After the events of September and October, 2001, however, the U.S. government took further actions to improve its level of preparedness against terrorism. For smallpox, this included updating a response plan and ordering enough smallpox vaccine to immunize the American public in the event of a smallpox outbreak. The plans are in place, and there is sufficient vaccine available to immunize everyone who might need it in the event of an emergency.

There is no proven treatment for smallpox, but research to evaluate new antiviral drugs is ongoing. Patients with smallpox can benefit from supportive therapy (e.g., intravenous fluids, medicine to control fever or pain) and antibiotics for any secondary bacterial infections that may occur. The majority of patients with smallpox recover, but death may occur in up to 30 percent of cases.